

WHAT IS CLAIMED IS:

1. A method for reducing a required signal-to-noise ratio in a time division multiple access (TDMA) link of a mobile network, the network including a first node and a second node, the method comprising:

receiving at the first node an initial TDMA signal burst from the second node;

determining link state variables, thereby synchronizing the first node to the initial TDMA signal burst; and

tracking the link state variables between the initial TDMA signal burst and subsequent receptions of TDMA signal bursts from the second node at the first node.

2. The method of Claim 1 wherein receiving an initial TDMA signal burst comprises receiving a long preamble included in the initial TDMA signal burst.

3. The method of Claim 1 wherein determining link state variables comprises utilizing the long preamble to determine at least one of a frequency offset from a nominal frequency, a carrier phase, a signal amplitude, a symbol phase, and a word phase.

4. The method of Claim 1 wherein tracking the link state variables comprises:

storing the link state variables; and

receiving at the first node at least one subsequent TDMA signal burst from the second node, the subsequent TDMA signal burst including a short preamble.

5. The method of Claim 4 wherein tracking the link state variables further comprises:

fetching the stored link state variables; and

updating the link state variables utilizing the short preamble, thereby synchronizing the first node to the subsequent TDMA signal burst.

6. The method of Claim 5 wherein tracking the link state variables further comprises storing the updated link state variables.

7. A system for providing a reduced signal-to-noise ratio requirement in time division multiple access (TDMA) links, within a mobile network, said system comprising:

a first node; and

a second node configured to transmit an initial TDMA signal burst to said first node, and wherein said first node configured to:

receive the initial TDMA signal burst; and

track link state variables between the initial TDMA signal burst and at least one subsequent reception of a TDMA signal burst transmitted from said second node.

8. The system of Claim 7 wherein the initial TDMA signal burst includes a long preamble, said first node further configured to determine said link state variables using the long preamble, thereby synchronizing said first node to the initial TDMA signal burst.

9. The system of Claim 7 wherein said link state variables comprise at least one of a frequency offset from a nominal frequency, a carrier phase, a signal amplitude, a symbol phase, and a word phase.

10. The system of Claim 7 wherein to track said link state variables, said first node is further configured to:

store said link state variables; and

receive at said first node at least one subsequent TDMA signal burst from said second node, the subsequent TDMA signal burst including a short preamble.

11. The system of Claim 10 wherein to track said link state variables, said first node is further configured to:

retrieve said stored link state variables; and

update said link state variables utilizing the short preamble, thereby synchronizing said first node to the subsequent TDMA signal burst.

12. The system of Claim 11 wherein to track said link state variables, said first node is further configured to store said updated link state variables.

13. A method for reducing a signal-to-noise ratio requirement in a time division multiple access (TDMA) link of a mobile network, the network including a first node and a second node, the method comprising:

receiving at the first node an initial TDMA signal burst from the second node, the initial TDMA signal burst including a long preamble;

utilizing the long preamble to determining link state variables;

storing the link state variables;

receiving at the first node at least one subsequent TDMA signal burst from the second node, the subsequent TDMA signal burst including a short preamble; and

updating the stored link state variables upon reception of the subsequent TDMA signal burst.

14. The method of Claim 13 wherein utilizing the long preamble to determine link state variables comprises utilizing the long preamble to determine at least one of a frequency offset from a nominal frequency, a carrier phase, a signal amplitude, a symbol phase, and a word phase.

15. The method of Claim 13 wherein updating the retained link state variables comprises:

retrieving the stored link state variables; and

updating the link state variables utilizing the short preamble.

16. The method of Claim 15 wherein updating the retained link state variables further comprises storing the updated link state variables.